

The following is claimed:

1. A method of maintaining a configuration of mechanical equipment, comprising the steps of:

5 establishing a desired configuration of the mechanical equipment based on a design objective of the mechanical equipment, where in the design objective includes at least one of safety, reliability, and performance;

evaluating an actual configuration of the mechanical equipment; determining if the actual configuration complies with the desired 10 configuration; and

15 planning an upgrade requirement for upgrading the actual configuration to the desired configuration if the actual configuration is noncompliant.

2. The method according to claim 1 wherein the planning step includes providing part level data on the mechanical equipment for a given point in time within a usable life of the mechanical equipment.

15 3. The method according to claim 2 wherein the planning step includes providing a serial number of a component of the mechanical equipment at any given point in time for a given point in time within its usable life to manage the at least one of the safety, reliability and performance.

20 4. The method according to claim 1 wherein the planning step includes obtaining a required part for the desired configuration and scheduling human resources consistent with availability of the required part.

25 5. The method according to claim 1 wherein the planning step includes procuring a required assembly for the desired configuration and scheduling human resources consistent with the availability of the required assembly.

6. The method according to claim 1 wherein the desired configuration includes configuration data on at least one of the following configuration

5 attributes: equipment identifier, equipment description, assembly identifier, assembly description, part identifier, part description data, installed location data, installed position data, installation date, utilization history data, maintenance history data, longevity information, part specifications data, assembly specification data, and equipment specification data.

7. The method according to claim 1 wherein the establishing step includes establishing the desired configuration based upon monitoring operational performance of a part.

10 8. The method according to claim 1 wherein the establishing step includes establishing the desired configuration based upon monitoring the operational performance of an assembly.

9. The method according to claim 1 wherein the establishing step includes establishing a desired configuration based upon monitoring operation performance of the mechanical equipment.

15 10. The method according to claim 1 wherein the establishing step includes establishing a desired configuration based on a substituted part with a greater longevity substituted for a part with a lesser longevity.

20 11. The method according to claim 1 wherein the establishing step includes establishing a desired configuration based on a substituted assembly with a greater longevity substituted for an assembly with a lesser longevity.

12. The method according to claim 1 further comprising updating the desired configuration based on engineering change.

13. The method according to claim 1 further comprising updating the desired configuration to facilitate compliance with a regulatory requirement.

25 14. The method according to claim 1 wherein the planning step includes scheduling and bringing together at least two of the following items at a specific

time and place: requisite parts, technical instructions, supporting equipment, acceptance criteria and procedures, tools, and repair personnel.

15. The method according to claim 1 wherein the evaluating step comprises determining the actual configuration by disassembly and inspection of at least a portion of the mechanical equipment.

16. The method according to claim 1 further comprising defining a template for configuration data prior to populating an actual configuration database and a desired configuration database with the configuration data.

17. The method according to claim 1 further comprising the step of managing disposition of a removed component of the mechanical equipment.

18. A system for maintaining a configuration of mechanical equipment, the system comprising:

a desired configuration database for storing a desired configuration of the mechanical equipment based on a design objective of the mechanical equipment, where in the design objective includes at least one of safety, reliability, and performance;

an actual configuration database for storing an actual configuration of the mechanical equipment based on an evaluation of the mechanical equipment;

a data processor determining if the actual configuration complies with the desired configuration, the data processor determining an upgrade requirement for upgrading the actual configuration to the desired configuration if the actual configuration is noncompliant.

19. The system according to claim 18 wherein the desired configuration includes configuration data on at least one of the following configuration attributes: equipment identifier, equipment description data, assembly identifier, assembly description data, part identifier, part description data, installed location data, installed position data, installation date, utilization history data, maintenance

history data, longevity information, part specification data, assembly specification data, and equipment specification data.

20. The system according to claim 18 wherein the actual configuration in the configuration database includes configuration data on at least one of the
5 following configuration attributes: equipment identifier, equipment description data, assembly identifier, assembly description data, part identifier, part description, installed location data, installed position data, installation date, utilization history data, maintenance history data, longevity information, part specification data, assembly specification data, and equipment specification data.

10 21. The system according to claim 18 wherein a maintenance input/output device is arranged to update the configuration data in the actual configuration database.

15 22. The system according to claim 21 wherein the maintenance input/output device comprises a monitor for monitoring part longevity data of a part and for sending part longevity data for storage in the actual configuration database.

20 23. The system according to claim 21 wherein the maintenance input/output device comprises a monitor for monitoring assembly longevity data of an assembly and sending the assembly longevity data to the actual configuration database.

24. The system according to claim 21 wherein the maintenance input/output device comprises a monitor for monitoring operational performance of mechanical equipment.

25 25. The system according to claim 18 wherein an engineering input/output device is arranged to update the configuration data in the desired configuration database.

26. The system according to claim 18 wherein a supervisory input/output device is arranged to access a supervisory database for storing historic configurations and associated repair history data.

27. The system according to claim 18 wherein the data processor is adapted to schedule and bring together requisite parts, tools, and repair personnel at a specific time and place.

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